

Relationship between indicators and drivers and stressors in ecosystems of the SFAN. Park codes are 1=EUON, 2=FOPO, 3=GOGA, 4=JOMU, 5=MUWO, 6=PINN, and 7=PORE.

RESOURCE REALM	INDICATOR CATEGORY Indicator	DRIVERS							STRESSORS																PARKS	
		Climate/ Weather	Coastal Processes	Geologic Processes	Hydrology/ Flooding	Natural Disturbance	Nutrient Cycles	Succession	Air Quality Degradation	Altered Disturbance Regimes	Climate Change	Disease	Engineered Structures	Ext. Development / Demographics	Fire Management	Habitat Alteration	Land Use Change	Non-native Species Invasions	Nutrient Enrichment	Park Development / Operations	Park Management	Recreational Use	Resource Extraction	Water Quality Degradation	Water Quantity Alteration	
ATMOSPHERE	AIR QUALITY																									
	Chemistry - contaminants (persistent organic pollutants (POPs), mercury, lead, zinc, cadmium)	X					X	X	X					X			X		X		X					all
	Chemistry - nitrogen/ sulfur deposition	X					X		X				X	X	X	X			X		X					1,3,4,6,7
	Chemistry - ozone	X					X		X				X			X			X		X					1,3,4,6,7
	Chemistry - carbon dioxide, methane	X					X		X	X			X	X	X	X	X		X	X	X					3,4,5,6,7
	Physics - fine particles (human health, visibility concerns)	X					X		X				X	X		X			X	X	X					1,2,3,4,6,7
	LIGHT and SOUND																									
	Dark night sky/ light pollution	X					X							X		X	X		X		X	X				3,5,6,7
	Natural sound levels						X							X		X	X		X	X	X	X				3,4,5,6,7
	WEATHER and CLIMATE																									
	Weather/ climate change	X	X	X	X	X	X	X			X			X	X		X								X	all

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LITHOSPHERE	SOIL BIOTA and QUALITY																											
	Soil chemistry and contaminants		X	X			X		X	X	X			X	X	X	X	X	X	X	X	X	X	X	X		3,5,6,7	
	Soil structure and texture		X	X			X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	3,5,6,7	
	Soil erosion and deposition	X	X	X	X	X	X	X		X	X		X	X		X	X	X	X	X	X	X	X	X	X	X	1,3,4,5,6,7	
	DISTURBANCE EVENTS																											
	Shoreline shifts	X	X	X	X	X				X	X		X	X		X	X			X		X	X				2,3,7	
	Earthquakes		X	X	X	X																					2,3,4,5,6,7	
	Mass wasting	X	X	X	X	X				X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	3,4,5,6,7	
	HABITAT PATTERNS																											
	Physical habitat changes (terrestrial, stream substrate change, channel and drainage morphology, seabed change)	X	X	X	X					X				X	X		X	X	X	X	X	X	X	X		X	all	

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HYDROSPHERE	WATER QUALITY																											
	Chemistry--core elements (temp., pH specific cond., DO)	X	X				X		X	X		X	X		X	X	X	X	X	X	X	X	X	X	X		all	
	Clarity (turbidity and siltation)	X	X		X					X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		3,5,6,7	
	Contaminants (nutrients, organic/ inorganic, metals)				X		X		X	X		X	X	X	X	X		X	X	X	X	X	X	X	X		1,3,4,5,6,7	
	Groundwater quality	X		X	X		X		X		X		X	X		X	X		X	X	X		X	X	X		1,3,5,6,7	
	Pathogenic bacteria	X			X					X	X	X	X	X		X	X		X	X	X	X		X	X	X	3,6,7	
	WATER QUANTITY																											
	Surface water dynamics (flow, discharge, use)				X		X			X	X		X	X	X	X	X			X	X		X		X		all	
	Groundwater dynamics (water tables, recharge, drawdown, use)	X		X	X		X			X	X		X	X	X	X	X			X	X		X		X		3,6,7	
	OCEANOGRAPHY																											
	Physical parameters (sea level change, current patterns, upwelling intensity)	X	X			X	X			X	X		X	X			X						X				2,3,5,7	
	DISTURBANCE EVENTS																											
	Flooding	X	X	X	X	X	X	X			X	X		X	X	X	X	X		X	X	X	X		X		2,3,4,6,7	
	Waves	X	X		X						X	X		X	X	X	X		X			X					2,3,7	
	Drought	X	X		X	X				X	X	X													X		all	

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BIOSPHERE	FAUNAL CHARACTERISTICS																									
	Species richness and diversity – selected groups	X	X		X				X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	all
	Native species of special interest (presence, population size, trends)	X	X		X				X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	all
	Species at risk (presence, trends, population size, genetic diversity)	X	X		X				X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	3,5,6,7
	Exotic species/ disease (#, area covered, rate of spread of selected species)	X	X	X	X					X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	all
	INTERSPECIFIC INTERACTIONS																									
	Selected species interactions (herbivory, predation, competition)	X	X		X				X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			1,3,4,5,6,7

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BIOSPHERE	VEGETATIVE CHARACTERISTICS																										
	Species richness and diversity – selected groups	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	all
	Native species of special interest (presence, population size, trends)	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	all
	Species at risk (presence, trends, population size, genetic diversity)	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	2,3,4,5,6,7
	Exotic species/ disease (#, area covered, rate of spread of selected species)	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	all
	Vegetation composition and structure	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	all

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ABIOTIC / BIOTIC INTERFACE	HABITAT PATTERNS																									
	Community assemblages (area/ distribution)	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X		
	Fragmentation and connectedness (patch size, patch proximity, connectivity)	X	X	X		X		X		X		X	X	X	X	X			X	X	X	X	X	X		
	Land use patterns (urban, agriculture, residential, grazing, wetlands)	X	X	X	X	X	X	X				X	X	X	X	X			X	X	X	X		X		
	ECOSYSTEM PROCESSES																									
	Succession	X	X		X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	3,5,6,7
	Nutrient dynamics	X	X		X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	1,3,4,5,6,7
	DISTURBANCE EVENTS																									
	Fire	X				X		X		X	X			X	X	X	X	X	X	X	X	X			X	1,3,4,5,6,7
SOCIAL	VISITOR USE																									
	Recreational use (numbers, types)	X	X			X			X	X				X	X	X			X	X	X	X	X	X	X	all
	Viewsheds	X	X					X	X	X				X	X	X			X	X	X	X		X		all